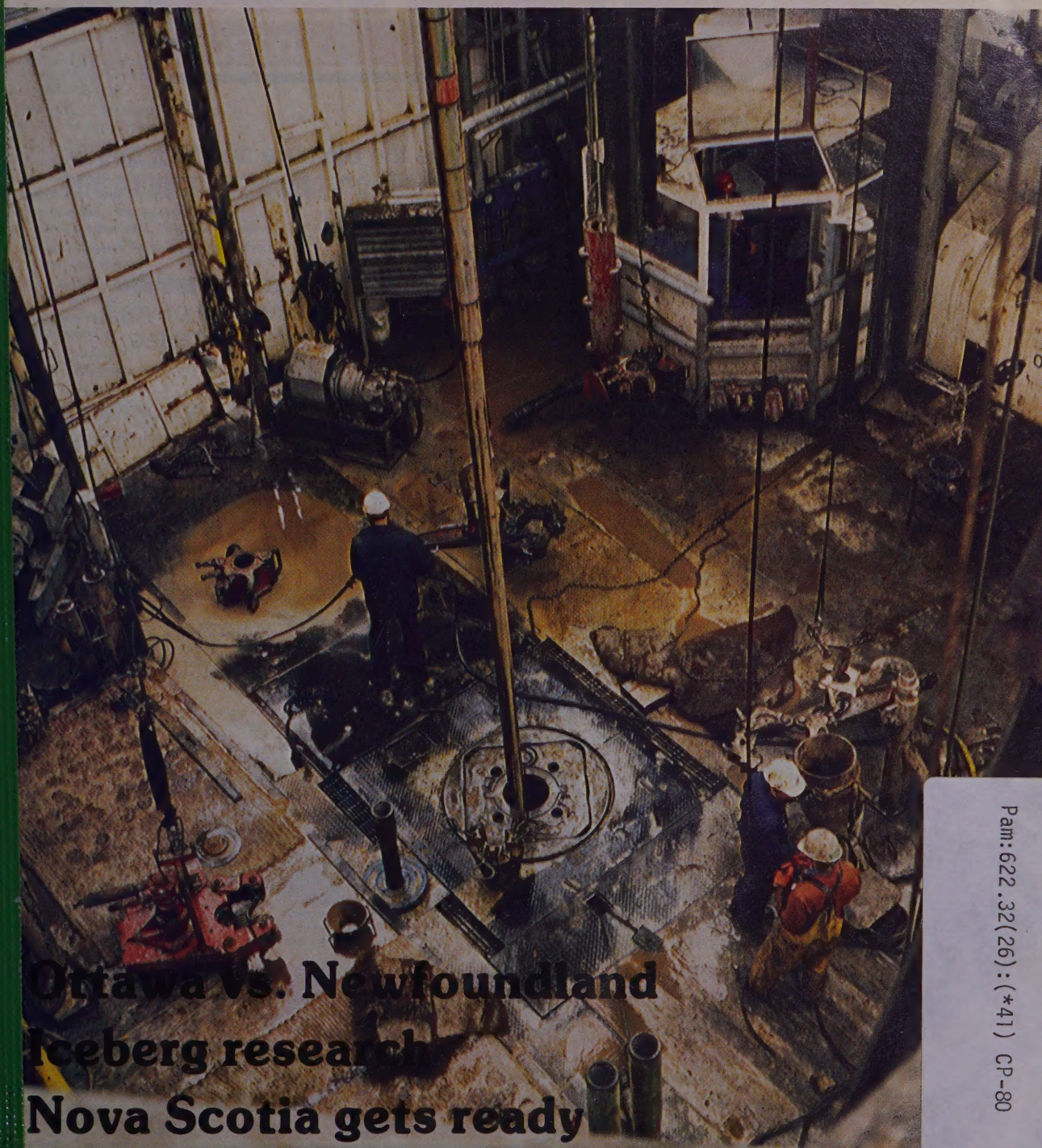


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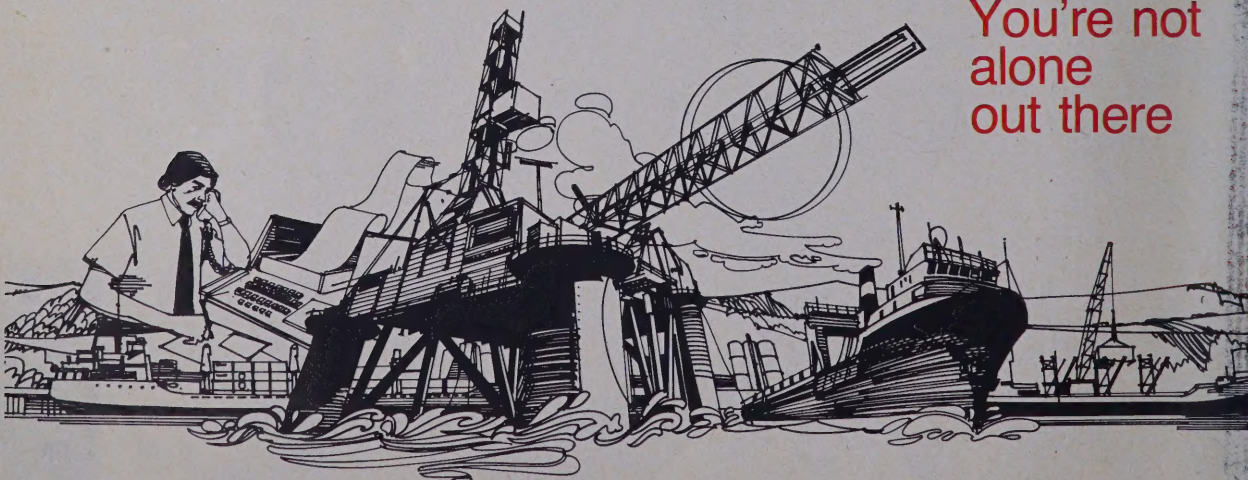
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Cover photo: shows drill table at Zapata semi-submersible drilling rig working offshore Newfoundland. Photo by Phil Smith.

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The Ottawa - Newfoundland impasse:

Brian Peckford isn't backing down

by Martin Keeley,
editor and publisher

Last month's failure in the constitutional talks to come to an agreement over ownership of offshore resources saw Newfoundland premier Brian Peckford come into the limelight as what many commentators are calling, with grudging admiration, the tactics of a street fighter.

The issue is still, as it has been since Brian drew up the offshore regulations four years ago, at an impasse between St. John's and Ottawa. It is almost certain that any Supreme Court decision over ownership would be in favour of the Trudeau Liberals, simply because the Supreme Court is dominated by central Canada. So Brian continues to maintain that his letter of agreement from the short-lived Clark government constitutes a binding agreement to give his province ownership of its offshore resources. Needless to say, the feds disagree.

Before the constitutional talks held

last month, Brian felt that Newfoundland's position over the ownership of offshore rights had crystallized nationally. And the confrontation in Ottawa, in which both he and Trudeau left the bargaining table with the battle lines even more strongly delineated, simply went to confirm this.

"We think that it has crystallized not just for Newfoundlanders, but also in the eyes and perception of other Canadians and the other provinces of Canada far more than it was before," he says. "The constitutional process has allowed us to crystallize it. I fully believe that in the pre-constitutional talks we were the best prepared jurisdiction sitting at the table. And we think that the federal government was the least prepared jurisdiction, especially in the area of offshore ownership."

Brian says that the Newfoundland delegation even had an appropriate

amendment for the constitution so there could be no doubt as to the province's claim over its resources. The federal government did not, he maintains, even put a position on the table. From the pre-Ottawa meetings, a report came out 10-1 supporting Newfoundland's position, and this led to the amendment prepared for the 'summit' last month.

The base position is the same as he has maintained since the province first drew up its offshore rights legislation — that it wants the same jurisdiction over resources on the continental shelf as it has on land. This means, he reiterates, that federal environmental conditions are still applicable, as are research, pricing, and the NEB. "We just want control over the rate of development and, on the front end, the larger share of the revenues that are going to be split between the three partners."

Brian sees no way he will relax the labour regulations which impose a "Newfoundland first" clause in hiring of people for offshore work (*Canadian Petroleum* September, 1979 and April, 1977). It is, he says, an interim step in trying to develop a foundation of skilled workers. Once it is developed, Newfoundlanders will be able to fight their own way into the job market on the same terms as other nationalities manning offshore rigs. "Right now we're at a disadvantage. So we want to make both sides equal from the start and then we'll compete with the best of them."

In addition to the preference for hiring Newfoundlanders for the offshore industry, a new local preference policy for the bid system has been adopted by Brian's government. It is a system which has been receiving a considerable amount of negative criticism from both within and without the province. It is not specifically geared just towards the offshore industry however, it applies to all industries in the province. The system is complex, based primarily on the various components in the bid documents plus the amount of labour content on a job and such things as the purchases made in Newfoundland. It has been through four years of development and became operational a few months ago.

"The philosophy behind the policy is to get a lot of the service industry to move to the province, as well as some of the contractors and the engineers. We want the latter to get involved in much of the activity that is going on here — not just offshore but in other areas as well. It forces the out-of-province companies to go into partnership — through joint venture — with local companies and these in turn are able to

get some expertise. Then, down the road, they might have a better chance to bid on their own."

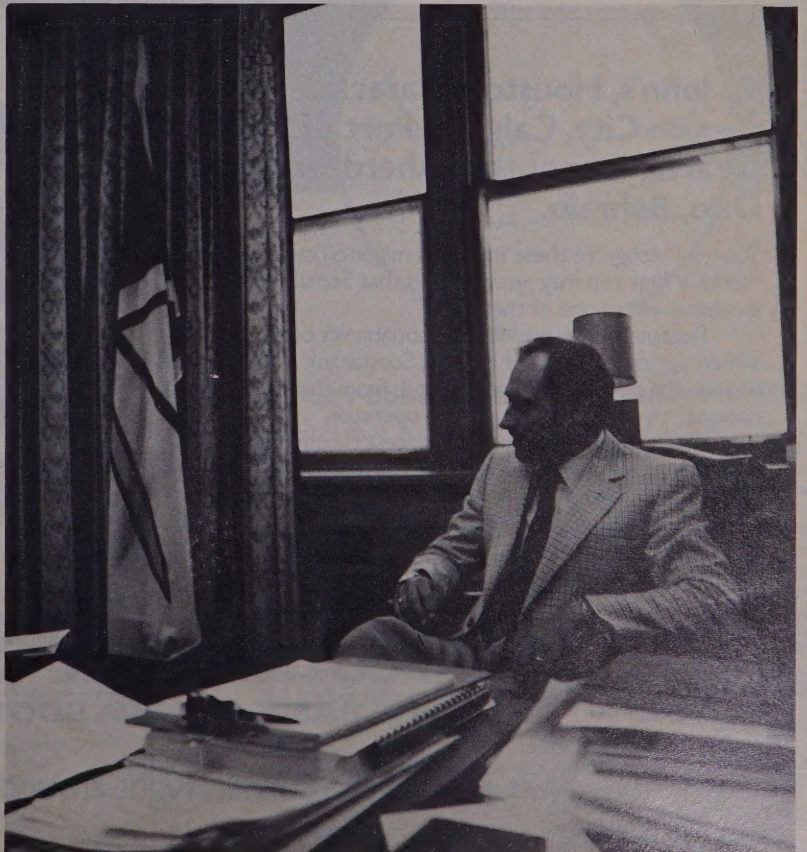
The local preference policy, Brian says, will be maintained for five to ten years. The labour preference policy will, he adds, probably be shorter term because it has been working well, with co-operation from the oilpatch. The government will be monitoring the offshore labour situation on an annual basis to make sure it continues to work. And he uses a Newfoundland example to underlie the logic of their philosophy.

"Our own Crown corporations were buying lumber from the mainland. It's all right to do that if you don't have any yourself. But if you've got trees around, and they fit the lumber requirements, then you use them. If not, then of course you buy them somewhere else!"

Things seem to be going well working with PetroCan this year, Brian confirms, though he wonders if things will be quite so rosy once the province's offshore jurisdiction has been confirmed! "That will have all kinds of impact on PetroCan and the 25 per cent which it gets under federal regulations. Now they seem to be very cooperative and we just haven't had any problems with them. They abide by all our laws and do everything we want them to do and more. It's like CN where we have the same kind of situation. The federal government is saying one thing (over the new synchrolift for St. John's harbour) and CN is saying something else. Petro-Canada is in the same boat. So as long as they abide by provincial policies and objectives, fine and dandy, but as soon as they start breaching any of those, of course we'll have to part company.

"But it is a weird arrangement when you look on it as a federal Crown corporation," he comments. Here's their bosses saying 'jurisdiction belongs to us' and here's the province that they're working in saying 'no, the jurisdiction belongs to us'. Once a decision is made, will they silently relinquish the strength that they now have? The federal jurisdiction still looms there — once that is removed and they're in the real world of fighting it out, hopefully they will be responsible and bide by our regulations then, just as they are now."

But, Brian reflects, the whole PetroCan issue has become a motherhood issue. Public opinion polls and open line shows across the country show how the public is very excited about the "great Crown corporation which is going to save us from going down the drain energy-wise," he says. "That means PetroCan is sitting on a



Photos show Premier Brian Peckford in his Newfoundland office

nice heap of positive attitudes, and that therefore gives them a great deal of leverage in how they operate."

Brian is quite optimistic that PetroCan can make a go of the Come-By-Chance refinery. The Crown corporation has until November 26th to back out of the options it has taken on the purchase of the refinery, which has been in mothballs for four years, since it went broke in 1976. If PetroCan does decide to go ahead, it will immediately pay \$10 million to Peat Marwick Co., the official receiver, followed by a further \$17 million either at start-up or by late 1983. The corporation would then pay royalties on each barrel of oil processed which would increase on a sliding scale over a 25 year time span. If the refinery operates at capacity, 100,000 barrels per day, a total of \$220 million would be paid in royalties by the end of the agreement.

If PetroCan can put a crude supply in place by the end of next month, and also establish a market, then he feels the deal will go through. "They have been very cooperative on this one, and it's the best shot we've had at Come-By-Chance since I've been around here," Brian admits. "And down the road, if Hibernia comes in, then you

can make that refinery a very viable operation."

So many companies have been trying to get acreage on the offshore areas since the news of the Hibernia strike, that Brian says his government will have to make a major policy decision on the matter very shortly. "And some of the companies that have been out there a while and have not put very much money up front are now suddenly looking and saying 'This is terrible, we haven't had our first round (of drilling permits) yet.' And they were very negative when we were putting together our oil and gas regulations."

The policy decision will be whether to reaffirm that there will be no first round yet, that there are enough permits out, or whether the door should be opened and more acreages released for bidding procedures to start. Brian says his inclination is to say 'no'. "There's enough activity out there now. That's the whole idea of our regulations and our philosophy — and some people still don't seem to realize that we mean what we say."

"But the proof of the pudding is in the eating, hard cold facts are what count. So, we have a uranium mine that was due to get off the ground in Labrador, and there was a strong lobby

to approve it. We put an environmental assessment board in place even before the legislation had been passed making it legal, and that board came in and said we should not go ahead with the mine. A whole town and a lot of people were depending on it going . . . but we said 'no'. And that shows the kind of sensitivity we have towards the control of both the environment and development," Brian emphasizes.

"So, with the offshore oil and gas we can demonstrate to the industry, to our own people, to the federal government and all the rest that this is a serious piece of business. If it is confirmed that there will be no additional permits on the one hand and secondly, that we go about the big spin-off industry proposals that are now starting to surface in a slow and controlled manner, the reaction will be 'isn't that terrible'. But we will have proved, by this control, that this policy is a substantive thing."

The whole matter of development must, he reiterates, be carried out in a rational way — even if it does mean slowing the whole process down. "The big boys are starting to put the heat on and flex their muscles. They feel that if they go in and say 'we've got to have this' the government must succumb — and we're not going to."

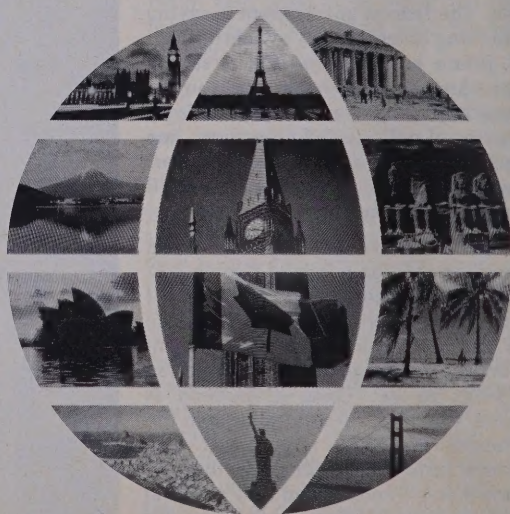



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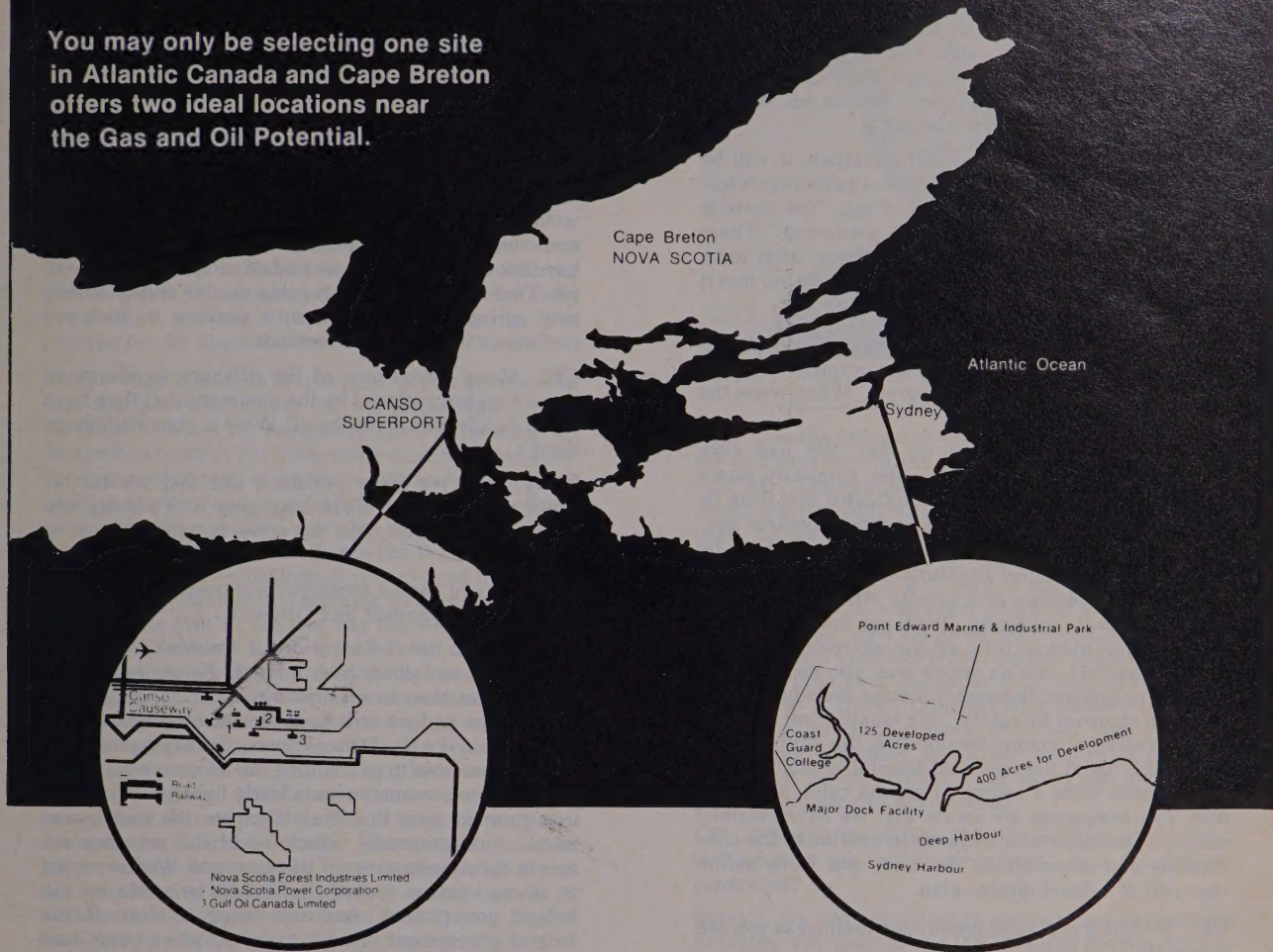
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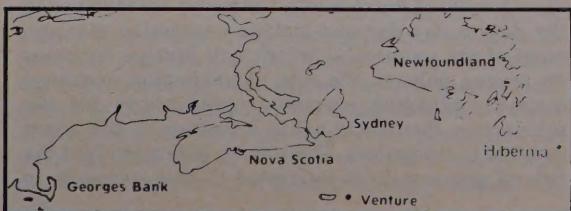
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The politics of a developing oil industry

CP: The offshore petroleum activity seems to be moving from an exploration to a production phase although companies are quick to point out that economically producible reserves have not been proven up. What is your opinion on the current status?

Barry: We anticipated and still anticipate it will be spring or summer, 1981 before there is sufficient information on reserves to enable you to say, "Yes, there is enough oil there to make it worth producing." There are certain unknowns. You have to know what price you are going to get for the oil before you can tell that it justifies the cost of getting it ashore.

CP: Under the mandate of controlling offshore development I understand that the government rejected Mobil's original production program. What were the contentious issues?

Barry: It wasn't as direct as that. We had very preliminary discussions with the company some months ago where the company indicated that from its preliminary analysis they were inclined towards production by tanker shuttle rather than by pipeline; by means of a floating steel structure rather than by means of subsea competition or a gravity structure. And we merely said to the company, "Well, you had better make sure that you explore fully all the alternatives and let us have the hard data on which way you decide to go, one way or another. Because it is not a decision that we will give approval to lightly." We would want to know the respective economic feasibilities, the environmental hazards, what the technical feasibility might be. So it was really more a setting of ground rules, not rejection. The companies are aware that we have retained our own consultants to allow us to scrutinize the conclusions and assumptions that they put forth before approval of a development plan.

CP: Is there a preferred production method as you see it now?

Barry: This is something that we have not yet decided. The general mood favours a pipeline. It's almost an emotional thing. That it's more yours, you have more control over it if you see it landing on your dry land. I don't feel we will lose control if it's trans-shipped. From a government point of view in terms of the benefits to the province we have made it clear that we want to see a refinery here which will give us the choice for further processing or petrochemical developments. We have a mothballed refinery because the original operators went bankrupt, one of the problems being that they couldn't get a secure supply of oil. Well, we say that if we have an oilfield off our shores then that is a secure supply of oil. Whether it is that actual oil that is refined or you swap due to the technical characteristics of the oil, we're not too hung up on that. We expect to see some of the Hibernia oil refined at Come-by-Chance. But we have said to the companies "Do not bother coming to us with a development plan that does not see the facilities at Come-by-Chance tied in to the overall development of the oil industry in this

province." We feel a pipeline makes it more probable that this would happen. Environmentally and technically we have to be aware of problems with ice and the effect on a pipeline versus the probability of spills with tankers. From an employment point of view there is more employment with a pipeline at construction stage but less in the long term. With tanker traffic you have employment in setting up marine terminals on the ships and it would be long term. We have not weighed all the factors and come up with a preferred route because we don't have enough information on seabed conditions, for example. That sort of research is going on this winter and by next spring we should be in a position to state our preference in production methods.

CP: Many discussions of the offshore development these days are prefaced by the comment that they have yet to decide who owns the oil. What is your attitude on that?

Barry: Oh, we never preface it like that. It's our oil. We're regulating it. We're managing it. It's being discovered out there. The universe is unfolding as it should.

CP: Do you have a scenario for a possible confrontation between yourself and Ottawa?

Barry: Yes. But if I set it out it wouldn't be of very much value so I don't think it would be advisable to go into it other than to say that we spent approximately seven years and we still have work being done on the preparation of a legal case. We are identifying the tools that are available to us onshore, the levers we may have from onshore resources that clearly belong to the province to make sure that the objectives, the social, economic, environmental objectives of the province are met in the development of this resource. We have tried to assess various moves that might be made by the federal government. And one thing is clear. If the federal government decides to precipitate a court case there will inevitably result lengthy delays.

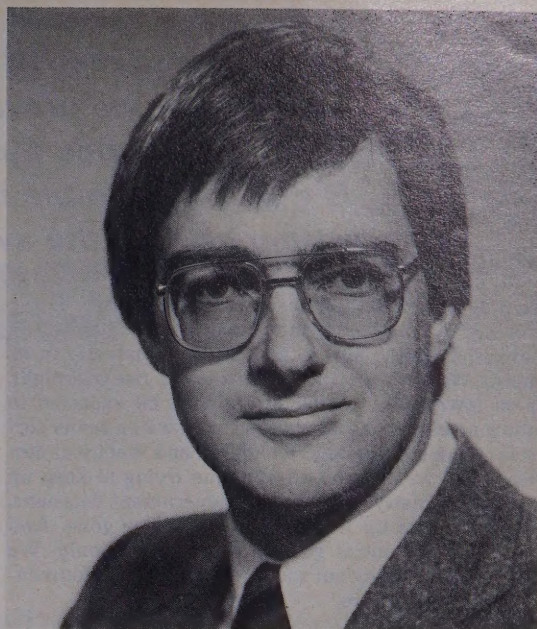
CP: If the federal Liberals are good at two things it would be first, winning elections and second, political compromise. It would appear, as you have described, that political compromise, avoiding the delays in development, is perhaps a more desired route.

Barry: I would have to say that, to quote a colleague of mine in Alberta, we have walked the extra mile. We have not yet seen any indication from the federal government that they are prepared to move one iota, one jock, one tittle, in the words of the previous minister of finance Mr. Crosbie, one teensie weensie bit on the important issue for us which is the control and management of the resource. Unless we are involved in the day to day decision-making concerning management of the resource — which will involve decisions on pricing policies, the rate of production, technical decisions affecting economic ramifications for the province — then we're not in a position to talk about possible compromises. There is no indication that the federal government is interested in that approach. In

the fall of 1974 Mr. Crosbie, as the then minister of intergovernmental affairs, wrote a letter to the prime minister saying that we had been talking to them for three years — the Maritime provinces and Quebec — and we didn't seem to be getting anywhere and now we wanted a straight answer. Were they prepared to admit that the province should have "a substantial degree of control over offshore resources." We didn't say total control. The response back was that the province would have to consider a court case and a suggestion that we start discussing the legal terms of reference. Now our right to control comes from our ownership of the resource. Our position is that we are going to fight to the death for ownership. Because if we don't have our claim to ownership recognized we have no bargaining power with respect to any other matters. If Alberta did not own the petroleum underneath its soil to what extent, do you think, would we be having negotiations between the federal government and Alberta on the matter of pricing?

CP: Your attitude is different from that in Nova Scotia which has evolved from a 75 per cent - 25 per cent ownership to a stance which at least in intent indicated that control of ownership might be de-emphasized for control over development.

Barry: The weakness of that point is that the moment that the province moves off its ownership of the resource, its basis for requesting control, its basis for demanding control, not necessarily total but a substantial degree of control is out the window. And we think we have the legal case to establish our ownership. From ownership flows control, not vice versa. Now ownership implies a use and entitlement to the benefits of a resource. Control — just look at your Oxford Dictionary — involves a regulation, a policing, but does not necessarily entitle you to the use and benefit. The federal Liberal government has very cleverly attempted to negate and mollify the concerns of the province's people, to paint this government as unreasonable, to try to get other people in this country adopting the federal Liberal viewpoint by stating, "Oh, we're prepared to give 75 per cent to the province and keep only 25 per cent for ourselves." And I'm sure that we would be able to negotiate that up to 95 to five in favor of the provinces, of the financial benefits. The problem is when you go behind that message, try to analyze what financial benefits they are talking about. You find then, as in the Maritime provinces agreement, that there is a great deal that has to be taken off the top by the federal government before they start sharing with the provinces. So that in fact, when you start analyzing the proposed Maritime provinces agreement and look at the total economic rent and how it's split up, instead of the provinces getting 75 per cent they get the 25 per cent and the federal government gets the 75 per cent. On the other hand when you look at the regulations Newfoundland has in place right now and analyze the flow of total economic rent — and this includes federal and provincial corporate and personal income taxes, royalties, et cetera — the economic rent is almost exactly as the federal government says it would like to see it divided. It's almost exactly 75 per cent for the province, 25 per cent for the federal government. So if the federal government is willing to do what it has said then it should be out supporting the regulations we have in place and supporting our entitlement to royalties under our regulations. But instead we have a very cynical public relations campaign. If we had \$5 million to put into a public relations campaign as the federal government has done now in the context of the constitutional discussions maybe we'd get our message across. But



Minister of mines and energy Leo Barry

right now the federal government is attempting to rip off this province in the guise of being philanthropic. And Mr. Trudeau has made some remarkable statements. He has said, "Oh, we're prepared to share 75 per cent - 25 per cent until you reach the national average of per capita income." Well, that looks very reasonable on the surface until you have to ask, "Well how is it that Mr. Trudeau was never prepared to intervene in Ontario in the past hundred years of Confederation when Ontario's per capita income was triple that of the Maritime provinces and most of the rest of the country?" How is it that Confederation doesn't fall apart when one province reaches a certain degree of affluence but somehow the whole country is going to crumble if Newfoundland ever dared getting beyond the average per capita standard?

CP: What is the philosophy, the essence of the control issue to you as a government? Is it the dollars generated?

Barry: It's not just revenue, cash dollars received in royalties. We want to see the resource developed at a rate our economy could keep pace with so that the local business community will not just be standing on the sidelines while those companies that have traditionally worked in the oil industry swoop in, take advantage of the contracts, the business opportunities, then go on their merry way in a few years when the oil is all sucked out. So we want the rate of production to be appropriate for the smallish economy down here, 572,000 people, realizing that we have to appreciate the national interest in having a secure supply of energy for Canada. We're aware of that. And if we're unreasonable the federal government will be able to stomp on us the way they can stomp on other provinces through the tremendous emergency powers, declaratory powers, all the powers that exist with the federal government. But we feel that we would like to see the oil and gas resources employed in a way to expand our economic base here so that when this depletable resource is depleted we will have businesses and skills in our work force that are viable doing other things. We want research carried out in this province which is why we started organizations such as Nordco and C-Core. We

***"How is it that Confederation doesn't fall apart
when one province reaches a certain
degree of affluence but somehow the whole country
is going to crumble if Newfoundland ever dared
getting beyond the average per capita standard?"***

want to see demographic movements change. If the province doesn't have control over management of oil and gas, it is such a tremendously large industry in its impact. We can expect to see new towns rise overnight, boom towns. The province will then be expected to follow meekly along and put in roads, water, sewer services, schools, hospitals, telephone and electrical services. And we'll spend all our time trying to keep up with the industry, with federal government decisions, trying to clean up the mess after they've gone. And we'll be a provincial government in name only. We won't be controlling our social, economic, environmental or political future.

CP: What do you plan to do with the funds generated from the offshore development into the Newfoundland coffers? Are you looking, for example, at a Heritage Fund?

Barry: Yes, but it is going to be a long time. This is one of the great illusions that the master of illusion Mr. Trudeau has managed to get out into the country, that somehow, with the Hibernia oil discovery, Newfoundland is rich. He is not even saying we're going to be rich, we're rich already. But even if we say that he means that we're going to be rich once it's developed that is simply not correct. The guidelines released with our oil and gas regulations have estimates of revenue for certain scenarios. Let's assume the Hibernia field is a billion barrel field. The flow of revenue after the expenses of production will only exceed \$600 million for two or three years maximum and for most of the time will be in the order of \$200 to \$300 million. We are now receiving in excess of \$400 million in the form of equalization and transfer payments from the federal government.

CP: How do you plan to maximize the benefits to Newfoundlanders?

Barry: There are a number of initiatives under way. The Newfoundland petroleum corporation we see as the provincial government's "state owned oil company" as it were. It will be the operational arm of government in the oil industry and will have the responsibility for administering the province's 40 per cent carried or working interest in discoveries. And one of the things we are looking at there is having a distribution of ownership to the residents of the province. It won't be a distribution of shares because then you start paying dividends and start paying taxes to the federal government so you're giving part of the income to the federal government. And we are somewhat reluctant to do that. We're looking at an overriding royalty interest which will have the same financial effect — give them a direct ownership interest in the discoveries and make them therefore more concerned and involved in the industry.

CP: It has been estimated that between \$7 and \$8 billion in contracts will accompany the offshore development over a period of time. What areas have you identified as appropriate for Newfoundland-based com-

panies and how do you plan to maximize these business opportunities?

Barry: In terms of the dollars involved just to develop one oil field you're looking at probable cost of close to \$6 billion. We have groups within the province actively looking at involvement in larger projects such as construction of either steel or concrete platforms. There are many smaller firms that are actively involved in supply and manufacturing. We have barite deposits that we feel should be developed and utilized in the oil industry. We have shipbuilding, ship repair and steel working capabilities that we believe should be used. We have research organizations, pure research such as C-Core studying operating in cold water environments; the more applied research such as Nordco which is into weather forecasting, iceberg towing; consulting firms that can carry out many of the studies that are needed. We have large construction firms that, either alone or with joint venture partners, should be able to manufacture a lot of the equipment that should be necessary. We have our food supply firms, our small machine shops. We prepared a booklet of companies in the province that first have the capability and second have the interest and want to take advantage of business opportunities. We made it available to the oil companies. When they come to us and say "Here's the contracts we're going to let and here's who we'd like to let them to," we say, "Well, hold on now. This contract is going to a firm in another country. We have a company here that we would like to be given an opportunity to bid." The oil companies were not used to operating in this fashion but they are now becoming used to the routine, and to our regulatory system and most of them are complying reasonably well. They also have the requirement under the regulations to expend a certain amount of money, depending on the amount of acreage held, on research, development, education and training within the province. All of this is building up skills and research. It's a long, slow process but we're getting there.

CP: Statistics have demonstrated that England, in spite of its industrialized base, had only 40 per cent of the North Sea related contracts at early stages and even now has only 75 per cent. How do you see the percentage breakdown for Newfoundland?

Barry: Well, it's only about 10 per cent of expenditures at the present time. But it has been improving steadily and expenditures are going to be so large that we don't expect as large a percentage as the U.K. We don't have the infrastructure, we don't have the people. We haven't set a top line. We're going to go for as much as we can get. In a certain way we are lucky that there were a couple of slow exploration years and that our discovery came when it did instead of in 1972 or 1973 when there was really very little knowledge about the oil industry. For a non-oil producing province I believe the businessman and the general public have as much knowledge about the oil industry and the business opportunities that can result as people in any province.



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(902) 539-0660 Loran C navigation receivers and accessories; hydroacoustic position reference systems.

Lunenburg Foundry & Engineering Limited

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Maritime Hydraulic Systems & Machinery Limited

(902) 463-6795 Design and supply of custom hydraulic systems; winch equipment.

Maritime Steel & Foundries Limited

(902) 752-1511 All types steel castings, forgings; metal fabrication; corrugated metal pipe.

Nautical Electronic Laboratories Limited

(902) 823-2233 Aeronautical and marine non-directional beacon and communications systems.

Orion Electronics

(902) 769-3059 Oilspill tracking equipment; electronic equipment manufacturing.

Purdy Bros. Ltd.

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St. John's gears up for oil activity

by Jane Muir,
managing editor

Newfoundlanders have a word for other Canadians. They may in fact have several words, but the most common nomenclature is that there are Newfoundlanders and then there are the mainlanders — a term that can be descriptive or even perjorative, depending on the emphasis in that unique Newfoundland brogue. And while they may not be aware that they are called that, mainlanders are becoming increasingly aware of Newfoundlanders' determination to climb out of a "have-not-province" status on the rungs of a developing oil and gas industry.

It's a message that is hard to miss. Led by an assertive Brian Peckford, the provincial government has simply and authoritatively moulded the presence of oil and gas companies offshore into

a situation which guarantees employment and business development in Newfoundland. The government's position is succinctly explained in a set of guidelines to the petroleum regulations, originally published in 1977 and drafted by Peckford in his former position as minister of mines and energy. "The people of this province," it states, "would never again accept major resource development on the same basis they had in the past.

"The deficiencies in those arrangements need not be stated; they are aptly summed up in the phrase 'hewers of wood and drawers of water'. Neither is there any need to allocate the blame for the mistakes of the past except to say, we, in this province, would do well to remember that the fault was in great part our own. We just did not pay

enough attention to good natural resource management."

The position paper goes on to say that "a breakdown in the relationship (with oil companies) would mean that our continued access to the outside capital and technological, managerial and marketing expertise which the oil companies represent, and which we need to develop our resources, will once again be attended with the question, 'are we willing once again to be relegated to the role of hewers of wood in order to see our resources developed?'"

The response is of course negative. And so, wound into the petroleum regulations are a series of checks and balances to ensure that Newfoundlanders will not be pushed to the sidelines as the mainlanders move in to develop offshore resources. While the regulations point out that the government is not nor will not make unreasonable demands from the oil companies it also emphasizes that they are determined to not let this opportunity slip through their fingers.

Two aspects of the regulations are tantamount to this theme, the first being a preference for local labour and the second being education and training (E & T) and research and development (R & D) programs. Under the preference for local labour section the oil companies are to open an office in the province six months before drilling starts; hire qualified local labour for work on the drillships in positions itemized in the regulations; give preference to local competitive goods and services, first preference going to goods manufactured in the province and second preference to provincially supplied goods. In addition oil companies and their contractors must give first preference to supply and service companies 51 per cent owned by residents of the province and second preference to companies which are managed from the province and have at least 50 per cent of their labour force resident in Newfoundland.

Tied into these demands are the



Photo shows drillship Sedco 445 in the St John's harbour before heading out on drilling off the east coast.

E & T and R & D programs. Under these programs the oil companies must set aside a certain amount of money annually based on the offshore acreage held. To this amount are credited any expenditures on manpower training and research within the broad guidelines set down by the government. The intended effect is to build an inventory of Newfoundland-based skills and businesses geared to both exploration and development of an oil field plus the more highly technical areas of the industry.

The government has also done much of the homework for the oil companies. A booklet listing all local companies offering goods and services appropriate to the industry has been prepared and made available to the companies. And lists are maintained by the government of local companies in the two separate categories described in the regulations for contract purposes. New companies have been formed around these guidelines, both joint ventures with existing local businesses and independents, although not in large numbers. "When the oil discovery was announced a number of businesses in and outside the city really jumped on the bandwagon to take advantage of it," comments Bruce Tilley, general manager of the St. John's Board of Trade. "It's when we start to move into the production stage that we'll really start to see new business growth."

Offshore exploration has brought close to 10 per cent of the total service and supply contracts to Newfoundland-based companies. It has also provided some time to get ready for a possible influx of people and businesses which, both businessmen and politicians agree, could accompany an announcement of commercial reserves. And yet, while the provincial government appears determined that Newfoundlanders will not be relegated to the roles of 'hewers of wood' the people of the province appear to be having some difficulty understanding how they can fit into a highly complex oil industry.

Close to one-fifth of the 572,000 residents of Newfoundland live in its capital city, St. John's, a city that both from proximity and infrastructure would be most likely to receive the lion's share of Hibernia-related growth. It is also a city that the twentieth century seems not to have touched. Clinging to the rocky hills that surround the harbour, the commercial core of the city has retained that old-world charm and leisurely way of life of its fishing village origins. And as oil threatens to take the city into the twentieth century two points of view emerge among city residents. On the one hand an uncer-

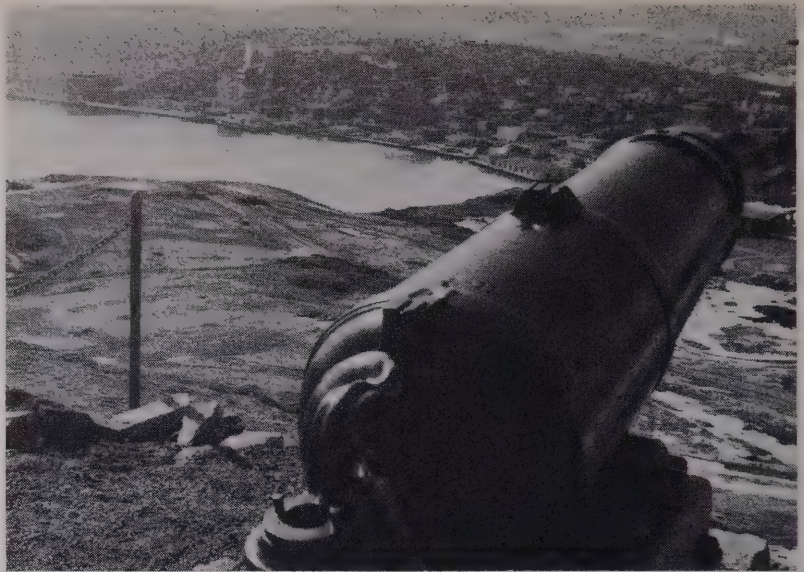


Photo shows view of St. John's harbour from The Battery

tainty of what it means to them and a reticence to give up their established way of life. On the other, a desire to grasp the opportunity and take advantage of it.

"There's a lot of people who would like to leave things the way they are," says the Board of Trade's general manager Bruce Tilley. "And there is no question that people are afraid of the effects on the cost of real estate, the cost of living. Even from the first announcement of a discovery last September the cost of land has gone up.

"But let's face it, when you look at the resources that the province has, not only offshore, we have to forge ahead. If we don't take that initiative, well, we've had a very high unemployment rate in this city for years. What we're hoping for is that Newfoundland will be a 'have' province and can make a more effective contribution to the whole country."

This conflict between the old and the new, between maintaining the established way of life and encouraging new growth, has moved beyond the gut emotional level to become entrenched in city politics. After all, for years now St. John's has not had to deal with new growth in any quantity. Building permit figures hover around the \$20 million mark. In fact, the city closed its planning department for over a year due to lack of need. And so the infrastructure to cope with growth of oil-related proportions is sadly lacking at City Hall. Instead, the thrust has been to preserve the old buildings around the city. There are people at City Hall who perceive the need for more progressive development in and

management of the city. City council itself is divided into two factions, one supporting the heritage issue, the other more progressive land management.

Preservation of that old world charm, the heritage of the oldest city in North America according to most historians, is the mandate of the St. John's Heritage Foundation. It is an organization that has a fair amount of clout in municipal government. "The Heritage group is in one sense an arm of the city," comments city manager Neil Cohoon. "Although it is a separate structure the city contributes to its financial base and is adopting its bylaws. These bylaws are a set of fairly restrictive guidelines for the preservation, restoration and maintenance of buildings within designated heritage areas. They determine the size, height, design, appearance, down to the most specific details of buildings within these areas and insist that adjoining buildings should conform to the same standards. Unfortunately a significant part of the downtown core has been designated a heritage area.

The Board of Trade, says Bruce Tilley, does not disagree with maintaining the heritage of designated buildings. What it does object to is the blocking off of entire areas, and that similar emphasis has not been given to areas for high density office complexes and hotels. Heritage, it would seem, has become the major thrust of city council at the expense of commercial growth. What's worse, say many businessmen and developers, is that the city does not know how to deal with the whole development process.

Continued on page 16

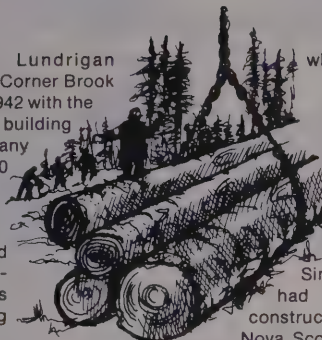
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while in Corner Brook, new activities were pursued, including a plumbing and heating division and Real Estate Investment and Management. By 1966 we were employing over 2500 people.

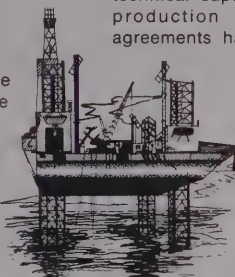
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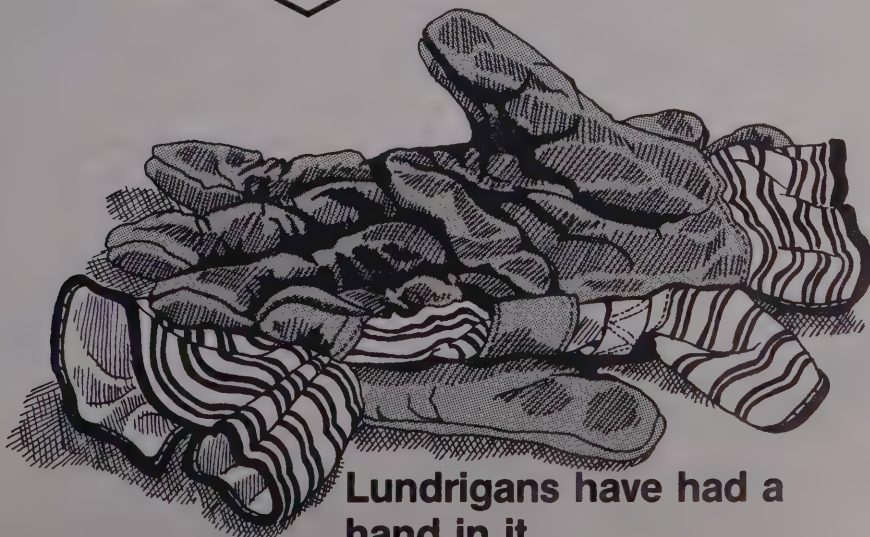
joint ventures and acquisition. Comstock International was acquired, bringing with it a world wide reputation for electrical and mechanical capability and just recently joint ventures were entered into with Tri-Ocean Engineering Ltd. for engineering design and technical supervision of drilling rigs and production platforms. In addition, agreements have been reached with the

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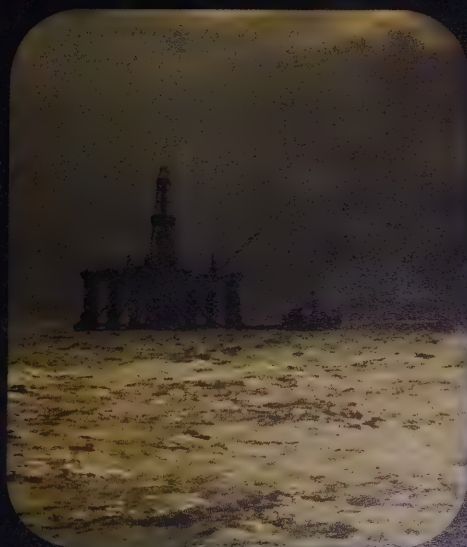


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"Developers will come in with a major hotel proposal, which the city badly needs," comments one local businessman. "and they will ask for a few concessions, which they do in every city in North America. City council tells them to come back with a better proposal." The result, he adds, is that after a while they give up and take their money elsewhere. And so, couched in the encouraging words of the provincial government, developers do not find quite the same encouragement at a municipal level when they come to St. John's.

Part of the problem is that no one knows if there is a lack or an abundance of commercial, industrial or residential land available in St. John's. For the businessman looking at locating in the city, information on the availability, location and costs of suitable land or space is very difficult to obtain. As one employee of the city's planning department put it, "No one has ever asked us for it before."

Recognizing the problem, the Board of Trade conducted a survey of available commercial space in February. Although no totals were given a rough estimate indicates that just over 300,000 square feet of office space was on the market at that time with costs ranging from \$3 to \$15 per square foot.

No breakdown of commercially zoned developable land was available. A city survey of industrial land showed that 69.18 acres of serviced land and 673.1 acres of developable land was available in various areas around St. John's. No breakdown of costs was given.

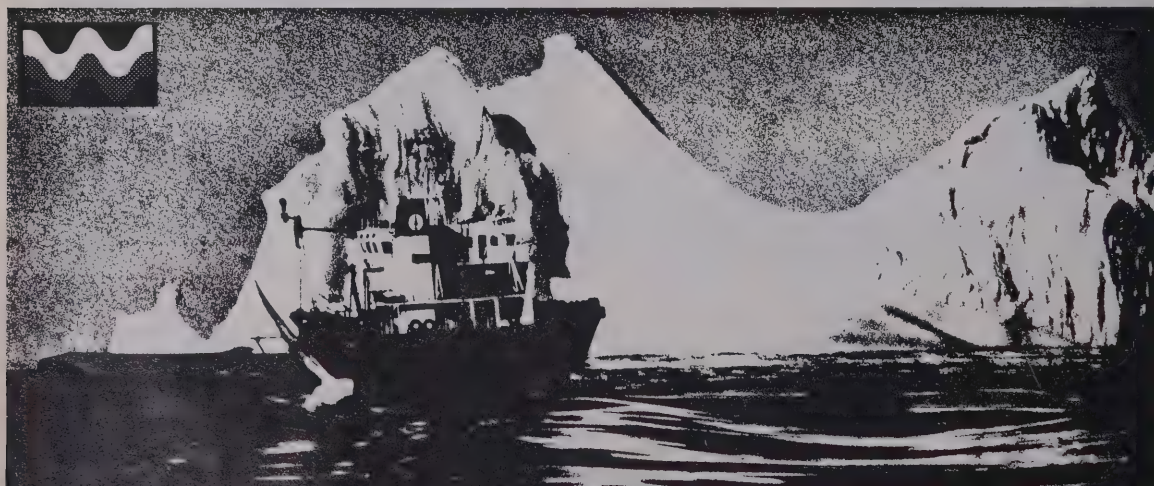
"The majority of our future development is still going to come from the fishing industry."

The lack of any one central department or individual at the city level to handle this type of information has become a highly contentious issue between City Hall and the Board of Trade. "In 1972 the Board made its first presentation to city council for the development of a business or industrial development department," recalls Rick Emberley, past president of the Board of Trade and a former member of the provincial department of industrial development. "Now it has almost become an annual event and still there is no

one person at the municipal level who can deal with development matters. Compared to any city in this country of a comparable size, St. John's is likely one of the very few without someone who can disseminate appropriate information to developers and promote the city." And, Emberley adds, the situation will be all the more critical when a commercial discovery is announced. It will be too late to do the homework then.

For the Board of Trade, backed by 650 local businesses, the promotion of a business development department is an obvious one. The city, on the other hand has to perform the delicate balancing act of satisfying the business community and a residential population wary of the impact of oil money. And, as Neil Cohoon points out, "the average person sees a drilling ship in the harbour and has no idea of how they could ever be involved."

The city, Cohoon feels, has done its best to prepare itself for the advent of oil activity. They began by relating St. John's potential development from offshore to that of Aberdeen, Scotland and so hired a consultant from Aberdeen to prepare an inventory of St. John's capability to serve the industry in the engineering and construction sectors. And while many people in St.



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John's question the credibility of his work, it has become the base line information on which the city operates. The city also matched many local companies with similar Aberdeen companies to help them prepare for what might happen. And it is in the process of bringing down a development plan which will allow for high density office complexes.

The city also questions the long range impact of the oil industry. "When the oil discovery was announced everyone was excited," Cohoon recalls, "but we have to be realistic. The majority of our future development is still going to come from the fishing industry." The fishing industry has in fact had the greatest single impact on the provincial GNP of any industry; it also created the most new employment in 1979 in a province with the highest unemployment rate in the country. For Newfoundland, fishing is far more of a certainty today than an oil industry fraught with so many question marks.

If an oil industry does develop, the city's assumption is that primarily branch office development will come to St. John's and not the industrial. "And so we turned to the fundamental elements necessary for development," Cohoon explains. "And we've iden-

tified four areas: market demand for various types of development; the regulatory environment; available sites; and appropriate financing to developers."

Bruce Tilley of the Board of Trade concurs. "Fishing is a major component of our GNP and I don't think that will change. What you've got now is just another component, another avenue to make the province more effective. The big thing is not what the oil and gas industry is going to do per se but what type of manufacturing plants, other businesses and new people you can attract here because of the oil and gas. That is what is going to make the whole thing tick."

The Board of Trade also took the next step. It wrote to 300 companies in the U.K. and 150 companies across Canada asking if they would be interested in relocating in Newfoundland. And the response? "Excellent," Tilley replies. "We have three filing drawers full of responses and can't keep our information brochure in stock."

Peckford's message is getting through it would seem, that establishing a presence in Newfoundland brings preferred status to companies wanting to participate in offshore development. In the process of estab-

lishing themselves as the province many businessmen and developers will find the system frustrating. The Board of Trade is aware of this, the city is slowly becoming aware of this, and no doubt the provincial government can also see the problems. But there are political hazards in the provincial government becoming involved at a municipal level, and promoting one community at the expense of others in the province, in order to reinforce its objectives for provincial development.

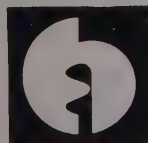
However, the situation is anything but static. The first steps have been taken towards the oil age, and the attitude of the people and the infrastructure to deal with offshore development are slowly evolving. There are still many questions to be answered before St. John's and the province will even know if there will be an offshore development to deal with. The existence of commercial reserves is only one of them followed by the production and development methods selected. And as we go to press, the federal government has answered the question of who owns the oil in a way that could radically alter the provincial input in any type of development. As one Newfoundlander put it, "It's going to be a very interesting decade."



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Operator	Rig	1980 Exploration Program Well and Location	Status (Oct. 1)	Partners	Landowner (Permit Holder)	Supply Base	Supply Vessels	Discovery Wells Since 1972	Cost of '80 Program
Aquitaine Company of Canada Ltd.	Ben Ocean Lancer (drill ship)	Aquit et al Hekja Davis Strait	drilling	Aquitaine Sogip PetroCan Home Oil PanCanadian Murphy	Aquitaine	Brevort Island St. John's Frobisher Bay	Pioneer Service Regal Service Freedom Service		\$25 million
BP Exploration Canada Ltd.		geophysical program south block west of St. John's	Phase I completed Phase II to begin October	Columbia Gas Development Canada Ltd. 17% Chevron Standard Ltd. 13% Gulf Canada Resources 10% PetroCan 15% BP Exploration 45%	BP and partners				\$2 million
Chevron Standard Limited	Glomar Atlantic (drill ship)	Chevron et al N-79 Hopedale Labrador	drilling	Petro-Canada Exploration Columbia Gas Development of Canada Ltd. CDC Oil and Gas Ltd. Chevron Standard Limited	Paddon Hughes Development Corp. Ltd.	Botwood	Cromarty Shore Seaforth Warrior Sandtor	1978: Chevron E-33 Hopedale	\$19 million

[illegible]

Petro-Canada Exploration Ltd.	Pelican (drill ship)		Petro-Canada et al Gilbert F-33 60 km offshore northeast of Sagilek	dilling	Petro-Canada Exploration Inc. Gulf Canada Resources Inc.	Petro-Canada Exploration Inc. and partners	St. John's Goose Bay Hopedale Saglek Carriquet	Crosby OSA Limited: 2 Seabased: 3 Zapata Marine: 1 Canadian Offshore Marine: 1 Genstar Marine: 2	1974: Total Eastcan H-55A Gudrid Total Eastcan H-81 Bjarni	\$70 million
	Pelican (drill ship)		Petro-Canada et al Ogmund E-72 140 km offshore northeast of Nain	dilling	Aquitaine Co. of Canada Ltd. Suncor AGIP Canada Ltd. Total Eastcan Exploration Ltd.				1976: Total Eastcan J-90 Snorri • discoveries made prior to Petro- Canada takeover of Total Eastcan operations.	
	Neddrill		Petro-Canada et al Reberva CO-02 dilling 150 km offshore east of Cape Harrison	dilling	Amerada Minerals Ltd. Total Petroleum North America Ltd.					

Shell Canada Limited

geophysical
program, via shelf
Noria Scotia, Gander
and Davis Strait
block, Davis Strait

Nova Scotia shelf: Shell & Partners
PetroCan 50%
Shell Canada 25%
Shell Explorer 25%
**Nova Scotia
shelf:**
Shell Explorer 50%
Shell Canada 50%
Gander Block:
Shell Canada 25%
Shell Explorer 25%
Texaco 20%
PetroCan 10%
Hudson's Bay Oil
and Gas 10%
Dome Petroleum
5%
Home Oil 5%
Davis Strait:
Shell Canada
100%

1972: \$6 million
Shell
N-50 Primrose

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Texaco Canada Resources Ltd.	geophysical program: Nova Scotia shelf	none	1974: Cinalta 1979: Venture	N/A
1, October, 1980				

Manpower and geology move easily from North Sea to Hibernia

By Heather Douglas

The pioneering spirit of the Scots and the English, which has contributed so much to the total development of Canada, seems likely to be the spearhead for the development of her largest oil field.

Almost every aspect of Hibernia's development has been tried and tested by the men who wrenched oil from the North Sea.

"The similarities between the North Sea and Newfoundland's east coast offshore are startling," says R. H. Carlyle, a senior vice-president of Gulf Canada Resources Inc. He states that the Hibernia oil field is the most prolific in Canada with test wells in the area showing an oil flow of 20,000 barrels a day — indicating the Grand Banks may hold as much as 10 billion barrels of oil and 15 trillion cubic feet of natural gas.

However, he comments, as encouraging as the tests may be, more exploration must be done to determine whether the find is big enough to warrant the enormous investment needed to bring oil ashore from 200 nautical miles.

The Hibernia play is located in the Jeanne d'Arc sub-basin eastcoast offshore Newfoundland. The name, Jeanne d'Arc, is derived from a French hospital ship which sank in a storm in the vicinity. It is situated 190 miles east-southeast of St. John's, Newfoundland.

The sub-basin is relatively small, being no more than 150 miles long and 70 miles wide. The structure is part of a general fault which has defined the eastern edge of the continent. Over a period of time an accumulation of sediments, some as deep as twelve kilometres, were formed and deposited causing the base of the fault to sink. Then, as the river systems continued to fill up the sedimentary pattern with alternating fine and coarse sediment, a permeable reservoir formation was capped with impermeable sediments.

Many geologists feel the quantities of oil found will largely depend upon the severity of faulting found in the individual pool rocks and the consequent types of traps which may have been created.

There appear to be significant

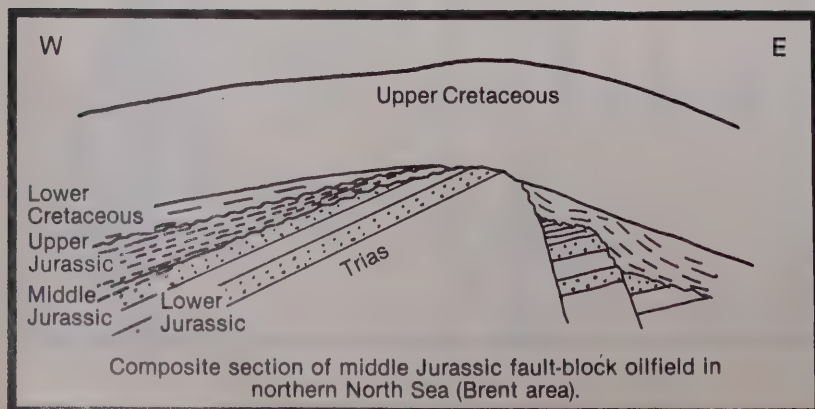
similarities between this play and the North Sea plays, especially the Brent and Ninian fields. Many scientists are convinced that the Appalachian land mass was connected to the Old Red land mass of England during the Devonian Age so the North Sea plays, including the Rockall area of the Irish Sea, have many similarities with Canada's east coast offshore.

The Geological Society of London recently published a paper stating: "Diagenesis of part of the Brent Sand Formation (middle Jurassic) of the North Sea Basin says the Basin reveals, in a daily increasing amount of detail, a history of subsidence which is closely similar to the other so-called 'inactive' Atlantic-type coasts worldwide. It shows the inception of broad basins in the Permian; taphrogenic control of subsidence through the early and middle Mesozoic and a sharp resumption of simpler inter-cratonic basin subsidence in the upper Cretaceous which has lasted throughout the Tertiary to the present."

The primary zones of interest in the Hibernia play are Cretaceous, where two intervals have tested oil between 3 355 metres and 4 118 metres. A third, thinner prospect, is found in the Jurassic which tests lesser volumes.

Not only is the geology of the Hibernia area similar to the North Sea, but there are other common denominators.

J. Hnatiuk, manager of Frontier Environmental Engineering for Gulf Canada Resources Inc., stated, "Canada's east coast was hardly unexplored when the Hibernia P-15 oil discovery was made; 130 wells were drilled during the period 1970 to 1979. While this represents a significant exploration effort, it also compares favourably with the North Sea, where some 200 wells were drilled before commercial oil was discovered."



And like the North Sea, the Grand Banks area is not without its problems.

The most serious environmental threat to future production is found in the mountainous icebergs which generally occur from March to June, but are possible at any time of the year. Usually the Hibernia area is not cluttered with icebergs, but last April 24 were observed within a 35-mile radius. This is the worst on record.

Modern day procedures are not being beaten by icebergs. Tugboats and towing vessels are being employed to tow or deflect them from drill ships and platforms. Yet nature still can triumph by sending fog, high currents and waves to complicate the process. On the brighter side however, it is unlikely that large icebergs will often drift into this area because of the shallow water depth.

Hnatiuk further stated, "Based on available data, it has been calculated that an iceberg could collide with a platform at Hibernia once every eight years, if no bergs were towed. Collision probability would be decreased significantly with iceberg towing capability. It should be clear that we do not expect icebergs to be too serious an obstacle, since towing will usually be feasible."

Mobil Oil Canada, Ltd., the operator in the area, together with Gulf Canada Resources Inc., one of the partners, have been conducting research into two approaches to Hibernia oil production. This has been based on the environmental hazard of the icebergs and the unbelievable impact associated with a collision together with the potential damage to sea bottom facilities which would occur if they ran aground.

The first approach is the floating production system with transportation utilized by either tanker or pipeline to and from the shore. There are several advantages to choosing this method. The first is that known technology from the North Sea can be applied to this area, saving it from many errors. The platforms are less expensive and have the advantage of being moved easily from reservoir to reservoir. Not only are the partners looking at an earlier production date, but developmental drilling is possible sooner over a larger drainage area using subsea completions. The final plus is that there is a good potential for shipyard maintenance if necessary. The floating production system will most likely be chosen also because, in the interests of safety, it can be quickly disconnected and moved at the approach of an iceberg.

The other method of production

which is being examined is that of fixed platforms. They have the advantage of better, more efficient production, less expensive wells and lower operating costs.

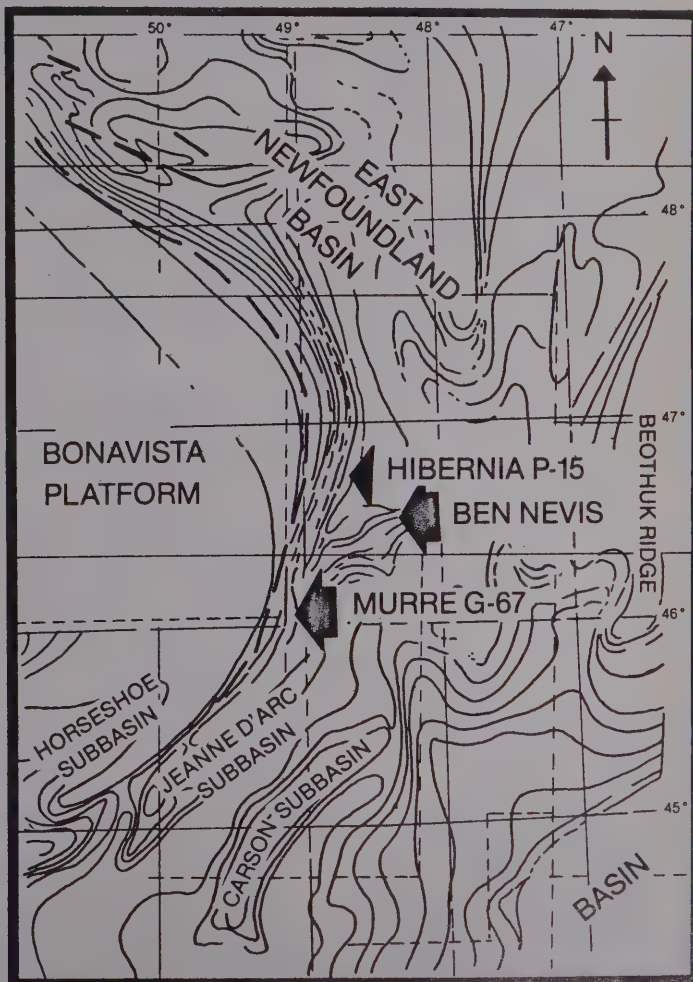
Like the North Sea, the wells are scheduled to be drilled in clusters. These clusters would be made up of eight to ten wells: five to seven completed as producers, two drilled as water injection wells and one spare to serve as a gas injector.

Gulf foresees that these clusters would have well templates below the sea bottom to avoid iceberg damage. It would be necessary to dredge the sea floor about 50 feet, then lower eight to

ten silos into the pit and cement them together. This enables the operator to drill the wells directionally to support them with the wellheads on rock.

Scientists agree the Hibernia Basin has an excellent hydrocarbon potential which can be put into production using the floating production system. To bring the Grand Banks on stream could cause serious environmental damage, yet confidence is high that modern technology can overcome any unforeseeable harm.

The Mobil consortium agrees that the Hibernia play will help Canada achieve self-sufficiency, maybe even by the end of this century.



Basement structure of the East Newfoundland Basin showing a major fault of the Jeanne d'Arc Basin fault. Many geologists feel the quantities of oil found will largely depend upon the severity of faulting found in the individual pool rocks and the consequent types of traps which may have been created.

As the sediments from mainland Canada piled onto the sinking floor of the Jeanne d'Arc they were wrenched and torn apart in blocks. It may be that geological beds have 'capped' these filled in crevices making them into ideal oil reservoirs. Hibernia indicates that this is the case but, if it isn't, Brian Peckford could be touting the fishing industry as his most important asset for some time to come.

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Nova Scotia:

Preparing for the tidal wave

**By Jane Muir,
managing editor**

"The exploitation of offshore oil and gas could be the most important commercial development of the twentieth century for Nova Scotia," says a recently released set of guidelines to provincial energy developments offshore. And throughout the province excitement is running high. As one businessman put it, you get the effect that there is a tidal wave hanging over the place.

The tidal wave will likely crash in on Nova Scotia after it hits Newfoundland. Offshore exploration on the Scotia shelf has come up with two discoveries after 13 years of frustrating drilling and over 70 wells being sunk. Mobil drilled its first well on Sable Island in 1967 and it wasn't until the Thebaud discovery that the company had any solid evidence of economic reserves on the Scotia shelf. While

indications of oil prospects have been spotty, Thebaud was joined by the Venture D-23 gas discovery last year. Together these two discoveries have reserves estimated at two trillion cubic feet, 250 million cubic feet per day, which would satiate the energy appetite of Atlantic Canada through to 2000.

However, Mobil has said that it needs 450 million cubic feet per day before production is viable. A component of this production scheme is obviously export of the surplus gas not needed in Atlantic Canada to other parts of the country, out of the country or perhaps both. The company also anticipates that Sable Island gas could be heating the first Halifax home by 1987.

In the meantime, Nova Scotia must continue to look to imported oil to

meet its energy needs, a situation which local politicians find highly unsatisfactory. While the infrastructure for oil is in place as home and industrial heating and power fuel, the provincial government would like to see that infrastructure replaced with one for gas supplied through the Q & M pipeline proposal, a proposal recently turned down by the National Energy Board. The government has appealed to the NEB to reopen the hearing on the Q & M with, they feel, great justification.

"We cannot understand the decision on Q & M," comments Bill Shaw, deputy minister of mines and energy for the Nova Scotia government. "It makes no sense in terms of our national energy policy, in terms of security of supply or self-sufficiency, or in terms of any attempt to save money on imported oil." Nova Scotia, says Shaw, is totally vulnerable to imported oil supplies, and Q & M is the critical element in any scenario in which natural gas could lessen this vulnerability over the next seven to eight years. "This supposes that we will have our own natural gas delivered onshore in the next eight years," Shaw adds. "Then we'll be all right. Beginning the process of substituting natural gas for oil now opens up the market for the province's own natural gas if and when it is developed. Plus the original Q & M proposal for natural gas service in the Maritimes included an export arm running down into the northeastern U.S. which could be one way of handling the surplus gas Mobil has said it needs.

While planning for Scotian gas may be premature, the provincial government's recently released guidelines do not have a futuristic tone. They are planning now for provincial participation in offshore development. "Offshore Oil and Gas, A Chance for Nova Scotians" treats the areas of participation in and management of resource development roughly the same way we found in Newfoundland, but only roughly. These guidelines are only preliminary to the legislation, and they are far less specific than Newfoundland's guidelines in terms of Nova Scotia content in employment and in service and supply companies.

However, the guidelines also re-examine the whole jurisdictional question supposedly settled last year when the three Maritime provinces (Nova Scotia, New Brunswick and Prince Edward Island) agreed to a memorandum of understanding with the federal government to jointly

Photo shows a view of the restored waterfront in downtown Halifax

administer offshore activity and gave Nova Scotia a 75 per cent cut of revenues. "We do not view this arrangement as a binding contract," says Ron Barkhouse, provincial minister of mines and energy. "That was never a signed document. It was a memorandum of understanding and that's as far as it went."

The government, adds deputy minister Bill Shaw, is not "hung up" on the use of the word ownership. "However," he says, "you have to realize that the kind of control we're talking about is pretty close to ownership."

If the government appears to be waffling on the ownership issue it is perhaps with good reason. While the guidelines detail the province's legal right to ownership and control, many people feel that a legal confrontation with the federal government portends little success for the province.

"Nova Scotia has a strong and positive legal case for ownership and control of its offshore resources," the guidelines state. "Its claim goes back as far as 1621 when King James I granted the Royal Charter of Nova Scotia... In recognition of the utter dependence of the early colonists on the sea for food and transportation the King included as part of the territory a band of sea stretching about 120 miles southward from our coasts. This bank easily encompasses Sable Island and much of Georges Bank and the Scotian Shelf. Canada's constitution, the British North America Act of 1867, provided that Nova Scotia's limits would be exactly the same after as before Confederation.

"For many years," the guidelines continue, "Ontario has asserted ownership and control of the minerals (including oil and gas) under the waters of the Great Lakes and for two decades has benefited from natural gas production in Lake Erie. These gas fields stretch southward nearly to the international boundary with the United States. Nova Scotia sees no reason why it should not have similar ownership of the resources of its own offshore.

"Nova Scotia believes, however, that legal confrontation over the offshore jurisdictional question should only be a last resort. It is confident the matter can be resolved through negotiation with the federal government."

A last resort is how Jim McNiven, executive vice-president of the Atlantic Provinces Economic Council views a legal confrontation as well. "Anybody with any sense won't take on the federal government in the supreme court on anything," he says. "In the U.S. states fight against their federal

government and historically they win 40 per cent of the time, lose 60 per cent of the time. In Canada the odds are nine to one against the province. That's why the supreme court isn't used for anything," he quips.

Control over the pace of development and access to revenues are the two contentious issues in the jurisdictional debate. The federal government,



Ron Barkhouse, minister of mines and energy

given a free rein, would likely want to see as much oil and gas developed as quickly as possible to offset the balance of payments and reduce imports. Both Nova Scotia and Newfoundland have indicated in their respective guidelines that development must be paced to avoid the boom-bust effect on provincial economies.

Access to revenues is an issue Jim McNiven calls a "convenient fiction" written by the federal government. "There just are not going to be huge amounts of money flowing into provincial coffers," he says. "If you take, for example, one billion barrels of conventional crude in Alberta as a reference to one billion barrels of crude here, with a national oil price of say \$25 per barrel that's \$25 million spread over a number of years. And it distributes itself quite differently in Alberta than in Nova Scotia or Newfoundland." Continuing his analogy, the cost of bringing the oil to the surface and moving it to a refinery in Alberta is say \$3 to \$4. The cost offshore is likely four times that, leaving Nova Scotia with \$9 and Alberta with \$21. If this amount is split up between the producing company and provincial and federal governments on a 40/40/20 basis, Nova Scotia receives \$3.60 and Alberta receives almost three times that, \$8.40.

"And that's only the beginning," McNiven continues. "The arrangement between the federal and Nova Scotia governments on equalization payments is that the government can call in 50 cents on each resource dollar. Nova Scotia will lose \$1.80 on each \$3.60 until \$400 million is reached. In other words, on the first \$800 million Nova Scotia loses \$400 million. Alberta does not lose any of that on its \$8.40 per barrel oil. So Newfoundland's allegation that the federal government gets more than the provinces is probably right."


Like Newfoundland, Nova Scotia has established a participation policy in its guidelines — a maximum of 25 per cent in all developments offshore Nova Scotia compared to 40 per cent in Newfoundland. While the province will obviously have to pick up its share of the costs, this back-in clause will give them greater access to revenues.

The guidelines also establish employment preferences for Nova Scotians. However, only on a temporary basis. "We would like to see operators give preference to Nova Scotians with the ability to do the job," says Bill Shaw. "The important thing is that we look at that as a very temporary development. That while we have to have some way to ensure that Nova Scotians get some work, this requirement will be unnecessary after two, three or four years." By putting in place technical training programs to upgrade the skills of Nova Scotians the government feels that their employment will be automatic. Like Newfoundland, Nova Scotia will levy operators based on acreage to help finance education and training programs.

However, there is no provision in the guidelines for preference for Nova Scotia based service and supply companies as there is in Newfoundland.

"The Nova Scotia government seems to feel that Nova Scotia is more capable of handling the impact," says Jim McNiven, "if only because of all the bank towers you see in Halifax." Halifax is the acknowledged commercial centre of Atlantic Canada and the city has already seen a surge of growth in recent years when the Quebec language laws prompted many companies to relocate Atlantic offices in Halifax. While oil-related growth would be on a much larger scale, the impact will likely be less drastic than in St. John's and more easily absorbed into the existing infrastructure.

According to Bill Murphy, assistant general manager of the Halifax Board of Trade, companies there are keen to get involved with offshore development. "There is a cautiousness, offshore development is not yet a sure



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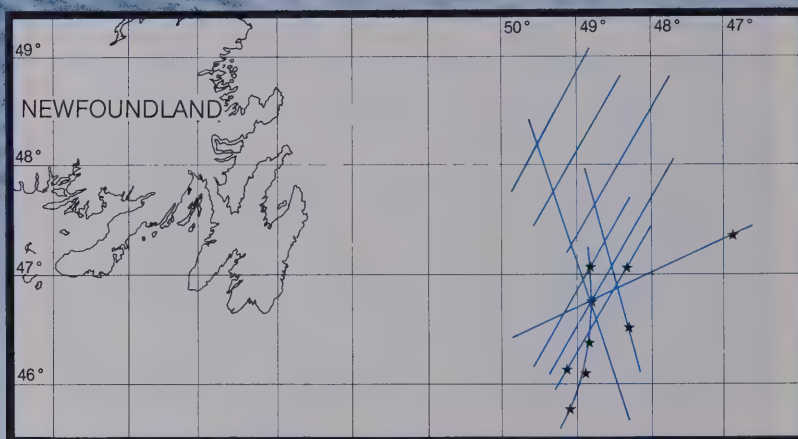
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thing," he adds, "but we have a very aggressive business community here." The Board of Trade introduced an oil and gas column in its monthly newsletter to give the 10,000-person readership in the Halifax area an insight into what the industry is all about. The Board is also preparing an inventory of the trades training programs in place and plans to match that against what is required for offshore employment.

Physically the city appears to be prepared for a possible offshore oil and gas industry; the infrastructure is in place and training programs are developing. However, Jim McNiven is not as confident as the Board of Trade that individual businessmen are ready. "To survive here in business for a long time you had to be almost a better businessman than anywhere else," he says. "I'm convinced of that. It's a tougher environment and the way they've made it go is by minimizing costs relative to revenue. That doesn't sound that startling, and it isn't. But what it means is that you have to use, re-use and re-re-use things, whether it's buildings or equipment, to keep costs down as far as you can."

"The oil industry doesn't operate that way," he continues. "They know that if you save \$1,000 on a piece of machinery they could lose several thousand dollars when the rig goes down for a day."

And it has already started to happen, McNiven says, with oil people coming in from Calgary to buy equipment from a local businessman, who happens to have just that piece of equipment in the back room. It's six years old and he is reworking it but if the oil man waits a couple of weeks he would save some money. The oil man, of course, does not want to wait and does not want old equipment. "People who insist on maintaining the old ways will be bypassed. Those who adapt, guys with just a pickup truck and a satchel, will be millionaires. And that creates a lot of social tension."

"But that is just what this region needs," he adds, "new approaches, new ideas, new money moving in to stimulate the economy."

Given an oil and gas industry develops off both Newfoundland and Nova Scotia, many people feel that Halifax will see the Calgary-type of development and St. John's will get the Edmonton type. Halifax will not know what it's in for, but it is obvious that both government and business want it to come.



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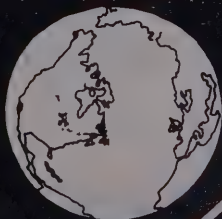
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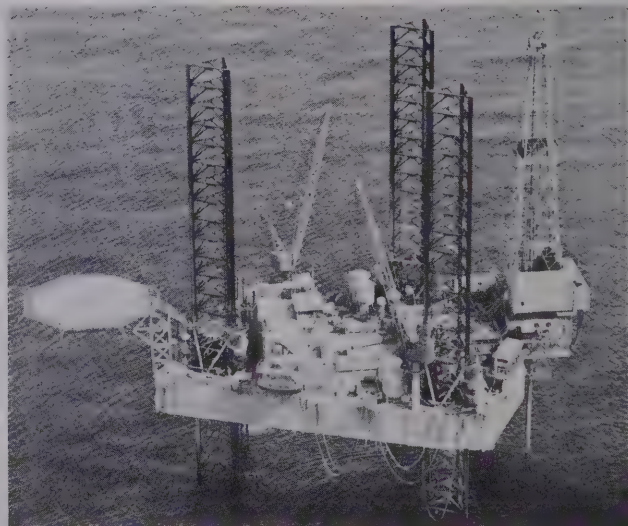
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Lack of technology and funding hinders eastcoast iceberg research

By Martin Keeley
editor and publisher

The old salts who have worked the Atlantic waters for many moons tend to pooh-poo the mumbo jumbo they say is coming out of the scientific research into ice and its unpredictable ways offshore Canada's east coast.

One veteran skipper told me, with great glee, the story of an unwary and rather stratified scientist he had on his boat during a research mission not so long ago. "He was digging up sediments," the old fellow recalled, "and he was a bit of a hippy, I'd say. Always wore the same clothes — raggy old T-shirt and jeans and an old pair of rope sandals. Well, we'd been out there for a few weeks and the lads were getting a bit bored. So one day, they stole his sandals when he wasn't looking and hid them in a scoop of sediment from the bottom, before it was examined by the scientist.

"Well," he continued, puffing on his pipe, "when that scientist had removed all the layers of sediment and uncovered the first sandal he was amazed, and overjoyed. 'Look,' he cried, 'a sandal which must be three million years old.' And when he found the second, he couldn't believe his good fortune. 'A pair,' he said. 'It must be the only one in existence and millions of years old, both of them.' And he never did discover that he had been hoaxed. Ah, them scientists," muttered the old salt, with a shake of his head.

But despite the fact that many of the old men of the sea believe that they know icebergs like the backs of their hands, and that the researchers and scientists are really reinventing the wheel, a great deal of very valuable research and development is being carried out in St. John's to try to come to terms with man's last frontier enemy in oil exploration — ice.

In fact, some scientists feel that in spite of the government's support of the iceberg research, things could be moving ahead faster than they are if any sort of production is going to be coming ashore from Hibernia in the near future. Dr. Jamie Rossiter of C-Core (Centre for Cold Ocean Research Engineering) is one of those scientists, and he is critical of both industry and

certain governmental agencies and departments.

Both industry and government, says Jamie, tend to suffer from the "nine pregnant ladies syndrome". Which means that they think, when they want something, all they have to do is pour money in and, for the sake of the metaphor, have one baby every month for nine months with nine different mothers — instead of the usual nine month pregnancy period.

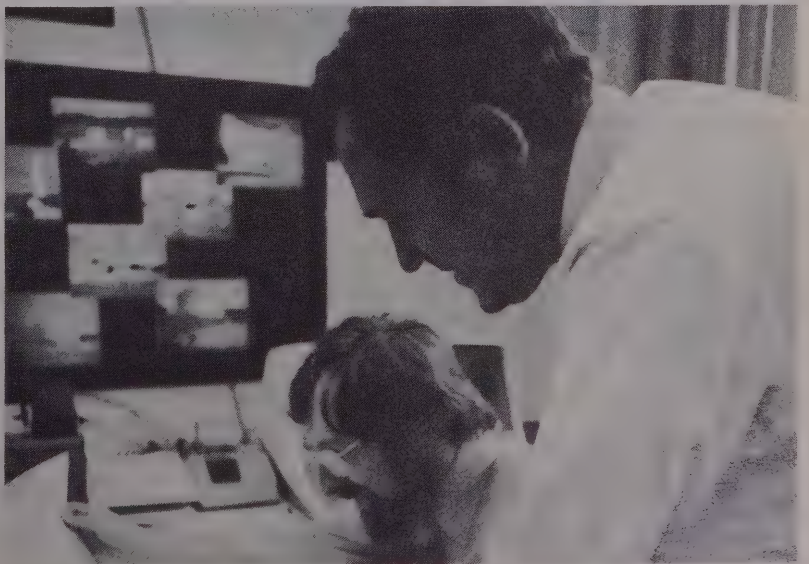
"You just can't expect to throw two or three times as much money at a problem and get the answer in much less time. It just is not a feasible thing to do. And I think that's one of the reasons that C-Core exists, to try and locate those frontiers, those little pockets. If you are to start work on them now you will make a lot of progress, so that the knowledge will be there when it is needed," he emphasizes.

There is also, he says, a great deal of difference between the oil industry in the arctic and off the east coast. "The arctic operators have got their act together much, much better. They have in place very capable and

informed scientists and engineers in their own right who are really in the forefront of technology. On the east coast I really don't think that is happening." The arctic impetus has made the work of C-Core and ice R & D groups like it just so much easier, he adds. He and other researchers are hopeful that PetroCanada will be more involved next year.

"Icebergs are a very big problem that is not going to go away," Jamie adds. In the past year Mobil has become one of the major financial supporters of C-Core's research programs, especially in the area of iceberg scour research. He still feels there is a long way to go.

Frank Smith, Nordco's new president, sees the problem in a different light. "People living off this coast have been living and hunting and surviving in this environment for 300 years," he says. "Even with new people coming in and finding new things, there is still a strong heritage among Newfoundlanders of understanding the ice and the sea. They have a real knack of working in an environment that is new and surprising for people coming in from the U.K. and the States."



Jamie Rossiter (seated) and Harold Snyder in C-Core's St. John's office.

living and working in an environment is only one facet. The problem, as Frank sees it, is that there isn't a good data base from which to develop engineering parameters. "We simply do not have a sufficiently accurate, detailed and hindcast data base with which you can with certainty come up with design criteria. You can't say we'll design a rig because we don't know all of these things. And this is what concerns both myself and many others."

The major difference between offshore eastern Canada and the North Sea, in Frank's eyes, is the lack of this base data. "There is a great difference between scientific and engineering data. And my concern is always that you have to have the scientific data before you can move to the engineering. But I don't think it's that far off," Frank stresses.

studies. The latter has a major impact on the structures and the data base is very weak in this area, Frank says. "We are working and expanding on spectral modelling of wave forecasting which takes into account the weather in Miami, because it all moves in the mix. It is our goal to bring the state of the art to assist in the exploitation of a resource safely, for people and for the environment."

Nordco has, Frank says, previously provided design criteria on the elements off the east coast for production platforms. It is based largely on forecasting and climatology studies and the extremes such as the 100-year icebergs and 100-year ice-packs. "We are now moving much more to interface on the effect on individual members of structures, and what the risks are with respect to 100-year phenomena."



There is, he adds, a great deal of work still to be done on the engineering side to determine, for example, the stress on a member (of a rig) of first year ice and certain currents. "And that's what we've got to find out. Not so much the internal strain or stress in an ice floe. It is scientific knowledge which over the long term is good to know, because maybe later you'll want to build a drilling rig on an iceberg. But I believe we've got to get more into the interaction of ice on fixed and floating platforms, and so on."

Then comes the modelling and testing, which is the primary area for Nordco, (Newfoundland Offshore Research and Development Corporation). Frank sees Nordco as moving more into the area of applied research, dealing with the effects of ice on structures, risk analysis and climatology

He believes also that things like iceberg scour will not be a major problem, because, rather than spending millions of dollars on scour research, the industry will probably just dredge glory holes below the level where any scour might occur, and thus protect the wellheads that way. "There are always choices like this. You can either develop the knowledge that you have or you can say, 'We know damn well that if we dig it 20 metres down, we've got clearance.' That's the trade-off you make. They would be safe to do that. It would cost a lot of money but it would shorten the time frame rather than waiting for the research. But, I think the research should go on in parallel. There is always a reasonably sound alternative approach. That's what engineering and science are all about."

The gathering of the data has been the primary concern of McLaren Marex — which has just been taken over by the Lavalin group of Montreal. Simon Grimshaw, head of the St. John's operation, says that his company now has three mini-computers in the field (for details of the computers see *Canadian Petroleum* June, 1980), gathering data from onboard the drillships by the operators it has on the rigs. The programming simplifies such things as predicting the movement pattern of icebergs.

Simon's views of the problems inherent in the development of the east coast are interesting. He sees the battle in the industry as being between the accountants and the people who have to deal with the real problems in such areas as the east coast. "The accountants are simply interested in getting the flow of money in as soon as possible, and the others who are very responsible people on the whole, have to find the means of doing this."

"People get the economic pressure they ask for, just like they get the government they ask for. And if the pressure says we want oil at any cost, then the environment and anything else can go hang. I think that the climate, generally speaking, is **not** that. It is more 'let's take it a little more carefully.' And when we look at our knowledge of the east coast offshore areas, the honest answer must be that we don't know enough at this stage of the game. We simply do not have enough data or understanding."

Simon feels that the job of the politician in this scenario is to decide what pressures are involved. Is it economically feasible to delay production against, for example, protecting the fisheries? Or is the necessity for energy such that we can ignore all the other factors. "I personally feel that looking at the Grand Banks, as we are, we're going to find more and more world interest — and not just Canadian and American interest — in what's happening here, because it is one of the prime fishing areas in the world. It cannot be allowed to be seriously damaged."

At this moment in time, says Simon, nobody has any answers as to what damage occurs with a major blowout in a fish stock area. Data is just becoming available from the North Sea and as it currently stands, he continues, the exploration industry has an excellent track record for non-pollution. All the major problems have come from the production side of the industry —

Head of the St. John's operation of McLaren Marex is Simon Grimshaw (left) seen here with one of the company's computer operators.



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"Because by the time you're flowing oil and the money is also flowing, then everyone relaxes. That's just human nature. It is then up to the regulatory authorities who must deal with such a situation."

McLaren Marex/Lavalin has a role to fill in trying to understand what happens, why it happens and when it could happen. One area that the company is involved in is in Mobil's impact study and biological assessment of the Grand Banks area. In this research, water samples are taken and analyzed. At the same time, the researchers also take and analyze seabed samples. These are worked out in a grid pattern around the Hibernia site. The impact of fishing involves looking at plankton counts and juvenile fish analyses. There are still, Simon reports, some problems in the juvenile fish area but he anticipates these will eventually be worked out.

"Nobody has ever looked into this area before," he points out. "And that is the problem. But at least Mobil turned around and said 'this is part of the program' and we will have to go on until we get it right."

Simon believes the takeover of McLaren Marex will be beneficial as it will provide more funding for new areas of research. "I believe that we have to create a new profession," he says. "That of the watchstander whose prime responsibilities are environmental. They are not the mechanics of keeping a rig in position, or keeping it balanced, it's the mechanics of what that rig is doing in terms of where it is."

A great deal of the company's work is in environmental impact studies such as the Grand Bank study, and Simon sees that increasing. "We have to look at what could happen, suggest ways in which this could be limited, and what action should be taken. We don't go and try and create an oil spill collection system, but we're very much

involved in the data acquisition to make oil slick modelling possible. Our role in that situation will be to say "we predict that it is going to do the following things and that it is going to affect fishing in such a way if it goes into a certain area unchecked. And therefore the course of action should be to delete this area at this point in time."

In the meantime, Simon reports, the company has some very interesting internal battles between the ornithologist and microbiologist on one side to the hard-nosed engineers on the other. "I find this an incredibly healthy situation, because neither side is allowed to go off too far at a tangent without the rest of them saying 'what do you think you're doing?' And there

***"When a breakup
like the Kurdistan
happens we just
can't sit wringing
our hands on
shore."***

is a lot of linking between different sides of the project.

"If we had to have a definition of what we're doing now," Simon adds, "I think we'd say, it's broad spectrum oceanography, ranging from making sure that the water samples around the rigs are not changing in content dramatically, to providing the weather reporting services onboard the rig which would help us predict a spill if it should occur, as well as giving the

logistics of safety — such as can a helicopter fly?"

Meanwhile, C-Core, which deals mostly in pure research of ice, has been looking at a variety of matters wholly concerned with the more esoteric ice problems. The agency is based at Memorial University in St. John's and its prime objective is "to help develop engineers and scientists competent to work with the cold ocean environment". One item it has been looking at, according to its director Harold Snyder, is that the movement of an iceberg is not significantly affected by its shape.

It can be affected by a large number of factors — the currents, the wind, its drift. But the current behavior is not steady, and what the scientists and engineers at C-Core are saying is that the observation of movement of currents and wind etc. which takes place on board a drillship to predict iceberg movement, is inaccurate. The reason is that currents at deeper depths will likely be controlling its movement. "The prediction around a rig is known to be poor," confirms Dr. Jamie Rossiter, chief scientist/engineer at C-Core.

The need is to work out a current profile at all depths, Jamie adds. This information then must be put together with the data obtained on icebergs themselves so that patterns can be ascertained. "If you have that kind of information, then you can have a mini-computer sitting on the drillship's bridge. The programmer punches in the data and away you go."

There is also a need for current meters that can relay the information back to the ship in real time, adds Harold Snyder. Most of the off-the-shelf current meters are recorders and have to be recovered from where they are dropped. To a scientist this is ideal but, as Harold points out, an engineer has to have the information 'right

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now', and C-Core and its colleagues are trying to deal with the engineering problems involved with the icebergs and their habits.

An area which C-Core began working on shortly after its formation just over five years ago was the measurement of ice thickness. Jamie explains that there are two major problems which, while they appear to be similar, are, in fact, quite scientifically distinct. One is the thickness measurement of sea ice, and the other is the measurement of the drift of icebergs.

It is, he says, extremely difficult to get a radio signal through the ice because of the salt content — and that's the way thickness is usually measured. Because the iceberg contains no salt, the radio signal passes through it very easily, but because of the weird and wonderful shape of icebergs there is a lot of reverberation of the signal inside the 'berg. C-Core developed a new method of measuring iceberg thickness some three years ago using a helicopter with radar mounted underneath to scan the 'berg. This has proven to be quite accurate. The other approach is to hang a side-scan sonar from the side of a ship and it also measures well. "The problem with that is that it is very dangerous, time consuming and expensive," Jamie says. "The helicopter system is better in all three ways — it's certainly much quicker.

"What I find very interesting," he adds, "is that industry has not picked up on this method. They continue to use the sonar approach that they always have, and one of these days somebody will wake up and say 'gee, there must be a better way than this,' and it will all come into focus!"

Another area of research that has had support in financial, intellectual and emotional terms from the oilpatch is the use of radar to determine the thickness of sea ice in the arctic. There are some problems with this, Jamie says. Firstly, the radar must be designed with the capability of getting a signal through the ice and also have the capability of resolving the kind of thickness that is needed — which can turn out to be opposite requirements.

Jamie says C-Core is currently trying to make a simple system which can be applied to operational use. C-Core has also been supplying field support — scientists working with other groups such as the national research council — for work on ice-sounding devices.

One program carried out last year with the radar unit was from a fixed-wing aircraft in the arctic. It was used

to carry out a study of multi-year ice-thickness distribution for Canadian Marine Drilling. As with the helicopter mounted scanners, this one was also tied into a computer for both data storage and a printout.

Another area of research vital to ice-ridden waters is the behaviour of oil spills, and C-Core was involved in determining what happened to the oil which leaked from the tanker Kurdistan, which broke up just outside Sydney, N.S. last year. The vessel was, Harold Snyder tells, well into the sea ice when it broke up and it is possible that breakup was caused by the very active zone of turbulent transition ice between the centre of the ice, which is quite stable, and the sea. In some places the ice made a barrier and prevented the oil from reaching the shoreline, and in other places it gathered it into the shore. The other interesting phenomenon was the effect of the ice grinding and breaking the oil up into many small particles, thereby making the oil very difficult to detect and find. "There is an awful lot of work to be done to determine the behaviour of different kinds of oil, whether it be bunker C or crude, in a cold water regime," Harold says. "Especially with the energy dissipating action of the grinding ice."

Another problem was that, because the Kurdistan broke up in a storm, it was a week before anybody could go in and take a look at the oil spill. Harold feels that teams of people operating special equipment are going to have to be put together to go in and deal with a situation of the Kurdistan type **when** it happens. "We just cannot sit wringing our hands on shore."

Perhaps one of the largest problems is in lack of funding for research projects of this kind. Both Jamie and Harold feel that work should now be under way to develop a reliable navigation system for the arctic waters, something which will be very necessary if and when PetroCan and Dome go ahead with their projected ice-breaking tankers. Some of the monitoring systems, for example, are still operational only in daylight — so, in the land where it is almost completely dark for six months of the year, they simply do not work. To help navigation in these waters, the LandSat system should be replaced by a Sea-Sat system, says Harold.

Federal programming recognizes the need for such things as the reliable navigational system — and it is a federal responsibility — but the funding just is not there, and it is not there in many places it should be, he adds.

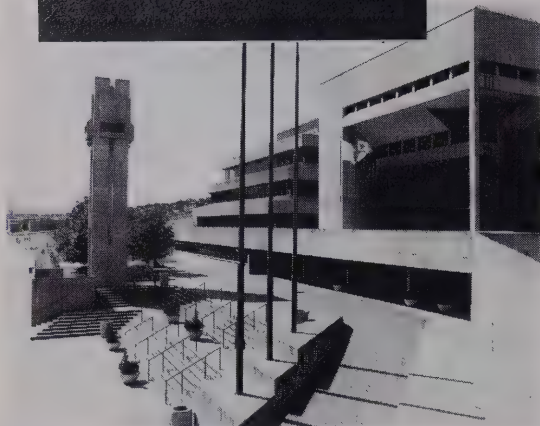
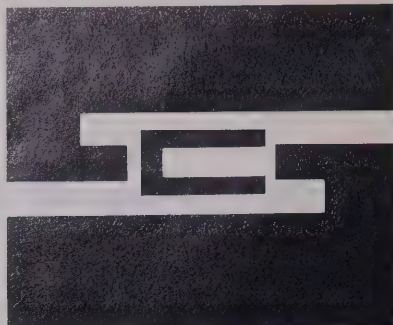
Last year, for example, in the design of an ice-reinforced vessel, **Idem** ~~the company~~ spent less days in ~~the design~~ work before in its history. "You ~~save money~~ by tying the vessel up — but only on diesel fuel — because you have to pay the crew and everyone else. I understand the fiscal restraints of our federal



Nordco's new president Frank Smith.

government — that's motherhood, too. But I don't think that such things as surveying and understanding our arctic waters and coastlines should be just put aside." Jamie agrees, and believes that more ships should be built and more surveying work be done.

Industry is doing the things it should be doing, Harold adds, "but I feel it is up to the federal government to play its fair role and provide the infrastructure with the general information. In other words, I'd rather hear about the environment and environmental conditions from a government agency than from the industry. The federal government has put an unfair burden on the industry to be carrying out all of these environmental studies. They should be paying for them out of the public purse and in the public domain."



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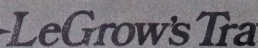
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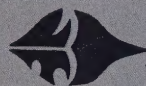
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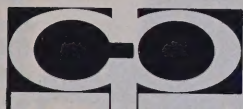
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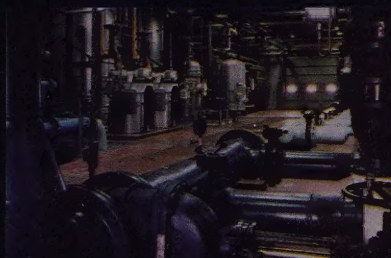
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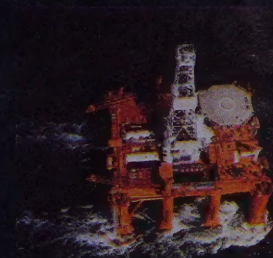
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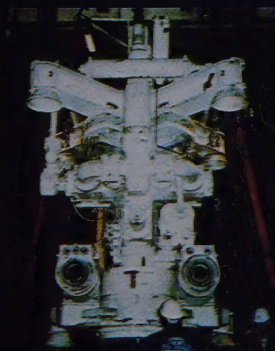
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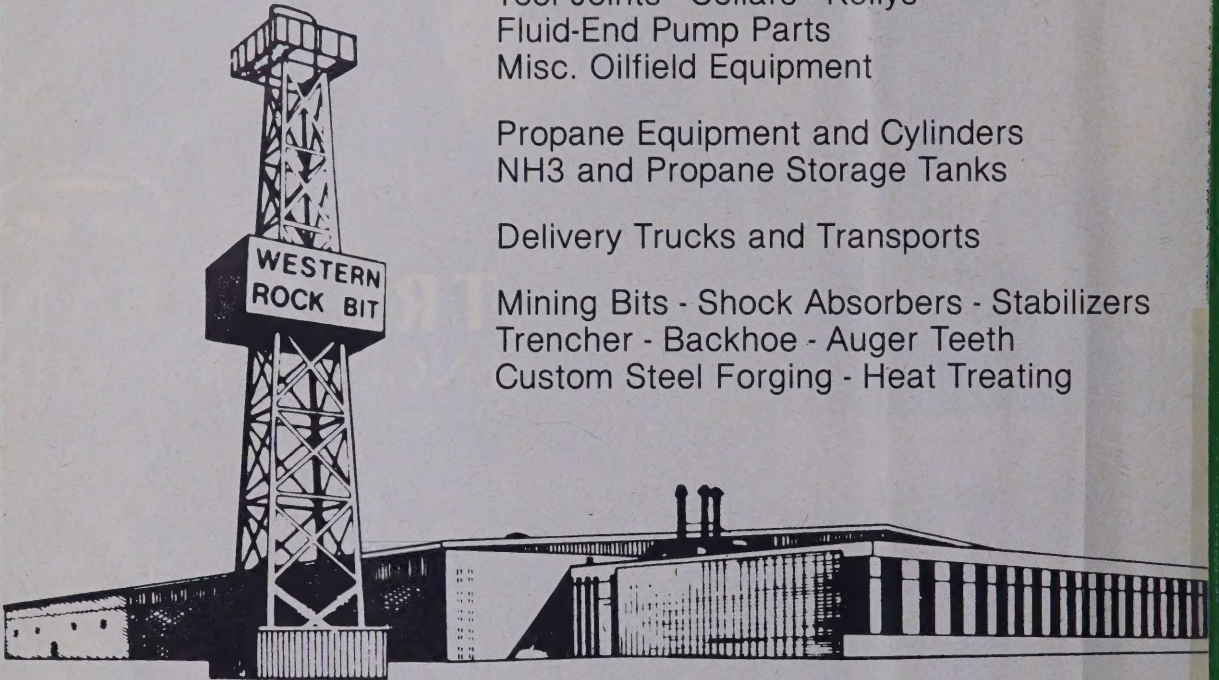
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